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ABSTRACT

To discover the strategies good and poor readers employ at grades two, three, and four, a case study focused on the oral reading of four students (two good readers and two poor readers) in their second, third, and fourth grade years. Data were examined and interpreted. All four children either increased their ability to make use of cuing systems (graphic, phonic, syntactic, and semantic) during their primary school years or maintained an already high level. Implications of the study are that students must master word identification skills and that the teaching of phonics can be beneficial to students. Finally, although the importance of visual information to a good reader's processing of reading material is high, the role of context related clues becomes more important during the late primary years. (Charts for each child accompany the text, and an appendix describes a scoring system for miscue analysis.) (DF)

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SESA PROJECT REPORT

The Dynamics of Cueing Strategy Usage in Grades Two Through Four[1]

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The Dynamics of Cueing Strategy Usage in Grades Two Through Four

The issue of whether reading activity is governed primarily by visual or cognitive cueing strategies has its roots in a philosophical debate going back for two centuries. The analysis of children's oral reading errors has, for several years, been looking at the reading process in order to discover how visual and cognitive strategies which children of varying abilities employ, develop throughout the school years.

Formerly such analysis was largely quantitative. The Gray Oral Reading Paragraphs, for example, noted children's hesitations, repetitions, insertions, omissions, reversals, and substitutions as they read short passages of increasing difficulty. Each error was given equal weight, and the error totals were combined with the scores from comprehension questions in order to produce a student's independent, instructional, and frustration reading levels.

In the late 1960's Kenneth Goodman developed a procedure whereby oral reading errors could be analyzed qualitatively, since it was realized that some types of errors (substitutions, for example, which did not alter the meaning of the sentence) might be indicative of proficient reading. Miscue analysis is now an established technique for both research and diagnostic purposes because it allows oral reading errors to be judged in light of current reading theories.

The most recent reading theories may be thought of as being on a "top-down"-"bottom-up" continuum with the main point on which they differ being essentially the amount of active cognitive effort required of the reader in order to achieve comprehension. The theories at the active end of the range can be described as "hypothesis testing", "analysis-by-synthesis", or psycholinguistic models.

According to this model, a context predisposes a subject to generate a set of general expectations about the material to be read. A preliminary scanning of the print allows the reader to extract distinctive features from which he constructs a possible form of the visual array of letters. This tentative hypothesis is checked against the visual features for a match; if success is achieved, the process continues. To Goodman, reading is a "psycholinguistic guessing game ... which involves an interaction between thought and language". The effectiveness of the constructive activity is affected by the reader's experience, linguistic skill, and cognitive abilities, and in fact, information about the material being read is as much outgoing as it is incoming.

However, researchers such as McKonkie and Rayner (1976) doubt the tenability of the extreme top-down position since their research in the field of eye movements shows that a reader cannot distinguish between words and non-words further than four to six character positions to the right of a fixation point. In addition, Stanovich (1980) suggests that good readers' word recognition skills are so well developed that a word can be named before contextual facilitation can have an effect. Readers, he claims, use their cognitive capacity for comprehension processes rather than for word identification.

A study by Biemiller (1970) offers a considerable insight into the strategic use of contextual and visual information. Using two classes of grade one students, Biemiller studied their oral reading behaviour throughout their first year of reading instruction. At the beginning of the year the subjects' errors showed a heavy reliance on contextual (semantic and syntactic) cues, which is not surprising, given that at this stage reading behavior is so dependent on oral language experience. The first month in which fifty percent of reading errors were of the "no

response" type was taken to be the beginning of the "no response" phase. Biemiller found that those who remained longest in the pre-no response phase were the poorest readers; there was a large and significant increase in the percentage of graphically similar substitution errors among the response errors occurring in the no-response phase; the earlier a child moved into the no-response phase the better was his reading performance at the end of the year; and in the post-no-response phase substitution errors became both more contextually and graphically constrained. That is, good readers are able to become proficient in bottom-up processing skills and find their use efficient whereas poor readers' lack of development in this area offers them no choice but to continue to rely upon contextual information.

A Case Study Approach

Given that no clear cut indication exists in the literature of the relative importance of visual and cognitive processing, it was decided to look at the oral reading of four students in particular detail in an attempt to discover the strategies good and poor readers employ at grades two, three and four. Throughout the discussion of these cases (two good readers and two whose reading is quite weak) high scores in the graphic and phonic similarity columns have been considered to be indicative of utilization of bottom-up cueing strategies and high scores in the syntactic and semantic acceptability columns are believed to reveal application of top-down cueing strategies.

Derek

Derek is now a grade four student reading at the grade six level. His scores on the measures of graphic and phonic similarity were at the high end of the range when he was in grade two and they continued to increase over the two

year period. The scores for syntactic and semantic acceptability were quite remarkable, increasing from 47.5% to 80% for syntactic acceptability and from 30% to 60% for semantic acceptability in two years. Further evidence of Derek's increasing ability to utilize contextual information is revealed in the finding that at the grade two level only 7% of the errors which were synctactically and semantically unacceptable were corrected, compared to 44% at the grade four level.

These figures suggest that while the importance of visual information to a good reader's processing of reading material remains high, the role of context related cues comes to play an increasingly significant role throughout the late primary years.

Even as a grade two student Derek read with good phrasing and with an expectation that the material would eventually make sense. Consider a story, written at the grade four level, which Derek read when he was in grade two. This is presented in Chart 1.

CHART 1

DEBBY THOUGHT BABY-SITTING WAS A DULL JOB,// ESPECIALLY ON FRIDAY NIGHTS WHEN EVERYONE// ELSE WAS HAVING A GOOD TIME. THAT NIGHT IT SEEMED VERY DULL AND MUCH TOO ~~QUIET~~ AFTER SHE HAD PUT LITTLE JACKIE ROBERTS TO BED. SUDDENLY THE TELEPHONE RANG. A VOICE SAID, "~~MRS.~~ ROBERTS? THIS IS ~~STATION~~ WAZ, 'THE GOLDEN HOUR'. YOUR NAME HAS BEEN PICKED FROM THE TELEPHONE BOOK. IF YOU ANSWER THIS QUESTION CORRECTLY WE WILL PAY YOU $10. ~~WHAT WORD OF~~ TEN LETTERS STARTS WITH G-A-S?"

DEBBY WAS SO EXCITED SHE HEARD ONLY THE END OF THE QUESTION. THE LETTERS "G-A-S" SPELLED "GAS". GAS MADE HER THINK OF //AUTOMOBILES. SO DEBBY SAID, "AUTOMOBILE".

"'AUTOMOBILE' IS RIGHT, ~~MRS.~~ ROBERTS! YOU WIN $10."

"BUT I'M ONLY THE BABY SITTER", ~~GASPED~~ DEBBY.

"DOESN'T MATTER. YOU ANSWERED CORRECTLY. GIVE ME YOUR NAME AND ADDRESS. ~~YOU~~ HAVE A LUCKY JOB ~~TONIGHT~~!"

KEY		
	~~had~~ has	substitution
	it	repetition
	©	corrected
	//	pause
	^	insertion
	(it)	omission

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When confronted with unknown words, Derek made long pauses but eventually was able to make an attempt at the word, successfully in one instance (automobiles), and unsuccessfully in another (exeeptly read for especially). In attempting to read the phrase "what word of ten letters" Derek made two miscues, but repeated the entire phrase several times until it sounded right, at which point he continued on. He expected the sentence context to assist in sorting out the difficulty. However, the fact that every one of Derek's substitutions bore a very high resemblance to the printed word demonstrates the importance of visual information to him in unlocking the message in the print.

At grade four (Chart 2) by which time Derek was reading at the grade 6 level, his pace and phrasing had further improved and he was able to read the difficult words effortlessly. With only one exception all the miscues were syntactically and semantically acceptable, but the continuing need to pay attention to the actual letters on the page is obvious by the close resemblance of all substitutions to the original words. Derek now reads with greater confidence. For example, when faced with the word "chores" which he did not know at first, he was not averse to looking at the letters in the word, making a reasonable guess, and carrying on, hoping that in so doing the remainder of the sentence would provide more clues, or that the visual input would "click" and a flash of recognition would occur. By the time he had read three more words, he realized that 'curies' should be read as 'chores', so he regressed and re-read the entire phrase.

CHART 2

AN IMPORTANT INVENTION FOR THE PEOPLE OF CANADA'S NORTH ~~HAS~~ had BEEN THE SKIDOO. IT ~~HAS~~ had ALMOST REPLACED THE DOG SLED AS THE BEST MEANS OF WINTER TRANSPORTATION AND COMMUNICATION.

IN LARGER TOWNS AND CITIES THE SKIDOO IS USED FOR ENTERTAINMENT. IN PLACES WITH A LARGE ~~DISTANCES~~ distance BETWEEN THEM IT IS MUCH MORE IMPORTANT.

THE MAIN USE OF THE SKIDOO (c) sk IS TO TRANSPORT PEOPLE IN ~~PLACES~~ the place WHERE SNOW, ICE, COLD AND DISTANCE MAKE TRAVEL BY CAR DANGEROUS OR IMPOSSIBLE. NOW PEOPLE NEED NOT BE CUT OFF FROM THE WORLD AND EACH OTHER DURING THE LONG, COLD WINTER.

EVEN THE SICK ARE HELPED BY THE SKIDOO. WHEN THE WEATHER IS TOO POOR FOR FLYING THE PATIENT IS PLACED ON A SPECIAL SLED AND PULLED BEHIND THE SKIDOO. THE HUNTER USES IT TO VISIT HIS TRAPS AND HUNTING GROUNDS, AND THE POSTMAN TO BRING HIS MAIL.

ALTHOUGH//USED FOR MANY (c) curies ~~CHORES~~ SUCH AS BRINGING WATER AND WOOD, SHOPPING, AND GOING TO WORK OR SCHOOL, WHEN ALL THE HARD WORK IS DONE THE SKIDOO IS WONDERFUL FOR HAVING LONG HOURS OF FUN.

KEY		
	~~had~~ has	substitution
	it	repetition
	(c)	corrected
	//	pause
	^	insertion
	(it)	omission

Kelly

Kelly read three years above grade level in grades two and three, and again in grade four. The proportion of her miscues which were graphically and phonically similar and syntactically acceptable actually decreased in the two year period, but the scores were very high at the outset so that the decrease still left her scores high. There was an increase in the proportion of miscues which were semantically acceptable. Moreover, while at the grade two level only 23% of the synctactically and semantically unacceptable errors were corrected, 45% were corrected in grade four, showing that an increased linguistic awareness accompanied Kelly's increasing reading maturity. For Kelly, it appears that making sense of what she read not only became more important as she progressed, but also required an expenditure of resources at the expense of other cueing strategies.

At the grade two level (Chart 3), Kelly made several nonsense word substitutions. When faced with an unknown word, she paused, sought clues from the graphic display, and made a guess, which in each case while not being a real word, bore a high grapho-phonic resemblance to the print. Kelly's use of syntactic information was evident in her correction of "If it wasn't this afternoon ^{C}it would be him much good". Kelly realized the grammatical incongruity between what she was about to say and what she had read as she was set to read 'him', necessitating her regression to resolve the difficulty. Even at the grade two level, this reader did not correct errors immediately, but took advantage of syntactic organization.

By the grade four level, more of Kelly's substitutions were real words, and those which were not were closer to the original word than were the grade two substitutions, indicating Kelly's increased proficiency in decoding.

CHART 3

"I SEE IN THE PAPERS THAT THE WORLD IS COMING TO AN END," SAID MR. PETERS, READING THE NEWSPAPER AT THE BREAKFAST TABLE. HE CHUCKLED.

Petey
~~PETE~~ SWALLOWED HIS BIT OF TOAST. "WHEN?" HE SAID.

HIS MOTHER LOOKED AT HIS FATHER AND FROWNED, warndly ~~WARNINGLY~~.

"NOT THIS AFTERNOON", SHE SAID ~~HASTILY~~ hastily TO ~~PETE~~ Petey.

MR. PETERS ~~SHRUGGED~~ strubbed. "IT DOESN'T SAY THIS AFTERNOON," HE AGREED.

PETE much ~~MUNCHED~~ HIS ~~CRISP~~ crispy CEREAL THOUGHTFULLY. IF IT WASN'T THIS AFTERNOON © IT WOULDN'T would DO be HIM MUCH GOOD, HE THOUGHT. FOR THE TEST WOULD BE THIS AFTERNOON—THE TEST THE SUBSTITUTE TEACHER HAD PREPARED FOR THEM.

THINKING ABOUT THE TEST, Petey ~~PETE~~ PLOPPED INTO HIS SEAT AT SCHOOL WITH AN//UNNECESSARY uncessary PLUNK. MISS DINGLEY FROWNED AT HIM.

KEY	~~had~~ has	substitution
	it	repetition
	©	corrected
	//	pause
	^	insertion
	(it)	omission

In the next passage, written at the grade 6 level (Chart 4), and in others which Kelly read as a grade four student, it can be seen that omissions were made on simple words (I, and, open), demonstrating that she felt comfortable enough, even when reading aloud, to read for meaning rather than seeking precision in word by word processing. When it was necessary for her to pay close attention to a difficult word she was able to apply her acquired word identification skills effectively. Although syntactic structure was used to facilitate corrections in some cases, that several words were corrected as soon as they were uttered suggests that Kelly was able to quickly notice a discrepancy between what she had said and what was in the print. This ability as well points out her well developed bottom-up processing ability. She may not have been dependent upon these clues, but she was able to use them very effectively when required.

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CHART 4

AS I SPLASHED INTO THE CHILLY, BLUE WATERS OF THE PACIFIC OCEAN MY CLUMSY SCUBA GEAR SUDDENLY BECAME WEIGHTLESS. I HAD ALWAYS FELT ~~WONDERFULLY~~ wonderful AT PEACE IN THIS SILENT, ~~SHADOWY~~ shadow WORLD AND a TODAY WAS I NO EXCEPTION.

SWIMMING STRONGLY AND SMOOTHLY I SANK DEEPER AND DEEPER, MY EYES BEHIND THEIR PROTECTIVE LENSES GRADUALLY ADJUSTING TO THE GLOOMY ~~DEPTHS~~ depth. THE USUAL ARRAY OF COLOURS AND SHAPES ~~FLASHED~~ flashing PAST, ANGEL FISH ESPECIALLY BEAUTIFUL WITH THEIR BLACK AND YELLOW STRIPES CUTTING ACROSS (THE) SILVERY WHITE BODIES. I WAS PLEASED I HAD GOTTEN A DAY AWAY FROM MY FRIENDS TO EXPLORE THESE WATERS.

WITH ONE SWIFT MOVEMENT THE MANY FISH SUDDENLY DISAPPEARED AND ALL WAS STRANGELY STILL. AS IF OUT OF NOWHERE A GREAT WHITE SHADOW SLIPPED SILENTLY INTO VIEW, ITS BELLY AN ARROW OF ~~SHINING~~ shiny WHITE, THE REST OF ITS HUGE BODY A GRAY SMUDGE IN THE WATER. A SHARK!

I DROPPED SLOWLY AND CAREFULLY TOWARD THE OCEAN FLOOR AWAY FROM THAT SILENTLY MOVING MENACE. IT SEEMED MORE INTERESTED IN A DARK CAVE EATEN INTO THE HUGE CORAL CLIFF TO MY RIGHT. I THOUGHT OF THE MANY OTHER DANGERS THAT COULD BE HIDDEN IN THAT BLACK ~~CAVERN~~ cave ern, A GIANT MORRAY ~~EEL~~ eel OR A SLEEPING OCTOPUS.

GRADUALLY, SO AS NOT TO ANNOUNCE MY DEPARTURE, I BEGAN TO FLOAT TOWARDS THE SURFACE. THE HUGE FISH HESITATED AS SOME CARELESS MOVE CAUGHT ITS EYE. WITH KNOWING//PRECISION precession IT SWEPT AROUND, ITS JAWS LOCKED IN A MOCKING GRIN. It WAS (I) TO BE ITS NEXT QUICK LUNCH?

KEY				
	had's	substitution	//	pause
	it	repetition	^	insertion
	©	corrected	(it)	omission

Paul

Paul is a very poor reader who, even at the grade four level, is still struggling with grade one reading material. However, the gains he made in the primary years are encouraging and are indicated in the table below.

Table 1

	Grade		
	2	3	4
% Graphic Similarity	52.5	69	80.6
% Phonic Similarity	50	50	63.9
% Syntactic Acceptability	30	37.5	70
% Semantic Acceptability	25	32.5	50
% Corrections of Unacceptable Miscues	17.6	15.3	27.2

In the two year period under investigation, Paul increased his ability to use visual, phonic, and contextual information to aid his processing of written material at first grade level but still corrected only one quarter of his ungrammatical utterances. Paul is, however, following an appropriate path and certainly shows the potential to eventually become a successful reader.

Unlike Kelly and Derek at grade two whose pauses resulted in attempts at the unknown words, Paul's long pauses resulted in omissions (Chart 5). He had to expend a great deal of effort in coping with even very basic words (is, it, ran, came), and he did not yet possess sufficient word analysis skills to make an attempt at 'uncle'. His reading was slow and torturous. However, he was able to use contextual information to assist him, but in what Jeanne

Chall (1983) refers to as a pre-reading top-down style. This is illustrated in the following example.

"That's a very good ~~idea~~ answer," said ~~Mom~~ Moo.

The phrase "a very good answer" is probably one familiar to Paul from his school experience. He substituted 'answer' for 'idea' using syntactic-semantic cues only, because his grapho-phonic skills were still so poorly developed that they did not come into play at all. When he did respond to the need to seek clues from the visual display, Paul relied heavily on decoding the first letter of a word. This was illustrated in many of his substitutions (such as Moo for Mom, made for missed, and ride for ran).

The interaction of visual and contextual information was not entirely absent, though. Paul substituted 'ri' for 'right' but corrected the miscue after reading the word 'now' which followed. Most often, however, corrections were made immediately, most likely on the basis of an awareness of a discrepancy between what had been said and the letters on the page. 'I'll' read for 'All', 'its' for 'is', and 'we' for 'were' were corrected before the succeeding words were tackled.

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CHART 5

AT LAST UNCLE BILL AND ~~HARRIET~~ AND ~~MOM~~ AND DAD WERE AT HOME.

~~HARRIET~~ SAID, "I'LL GO TO SEE MY ~~FRIENDS~~. ~~ALL~~ OF THEM HAVE ~~MISSED~~ ME SO MUCH. I KNOW ~~THEY ALL~~ WILL ~~WANT~~ TO SEE ME".

"THAT'S A VERY GOOD ~~IDEA~~," SAID ~~MOM~~. "WHY DON'T YOU GO SEE ALL OF THEM?"

~~HARRIET~~ RAN TO PAT'S HOUSE. SHE RAN UP TO THE DOOR. ~~PAT'S~~ ~~MOM~~ CAME TO SEE HER.

"IS PAT HOME?" ~~ASKED~~ HARRIET. "HE WILL WANT TO SEE ME. I HAVE BEEN AWAY!"

"NO," SAID ~~PAT'S~~ MOM. "PAT ~~IS~~ NOT HERE. HE IS AWAY RIGHT NOW. BUT HE DIDN'T SAY HE ~~MISSED~~ YOU."

KEY

~~had~~	substitution
it	repetition
©	corrected
//	pause
^	insertion
(it)	omission

By grade four Paul was more willing to guess at unknown words as noted in Chart 6. In two instances a long pause resulted in a correct reading ('duck' and 'course') while in three others the substitutions were moderately similar to the original words ('dead' for 'died', 'things' for 'this' and 'chirped' for 'clucked'). The utilization of syntactic and semantic cueing strategies as well as the grapho-phonic is evident in the latter cases. At grade four, Paul no longer made a guess without taking the visual information into consideration. Paul's intonation suggested he knew when his guess was not correct.

CHART 6

WORRIED MOTHER

"WHAT CAN WE DO WITH THESE?" ASKED JAN. SHE WAS LOOKING AT SOME DUCK EGGS. "THE MOTHER DUCK HAS DIED.

"WE WILL GIVE THEM TO ONE OF THE HENS," SAID JAN'S FATHER. "SHE WILL SIT ON THEM AND KEEP THEM WARM UNTIL THEY HATCH. SHE WILL LOOK AFTER THE BABY DUCKS BECAUSE SHE WILL THINK THEY ARE HER CHILDREN."

JAN'S FATHER PUT THE DUCK EGGS WITH THE HEN'S EGGS. HE WAS RIGHT. THE HEN SAT ON ALL THE EGGS. AFTER A FEW DAYS ALL THE EGGS HATCHED. THE HEN TOOK CARE OF HER CHICKS AND SHE TOOK CARE OF THE LITTLE DUCKS AS WELL.

ONE DAY THE BABY DUCKS TRIED TO GO INTO THE POND. BABY DUCKS WILL DO THIS OF COURSE. THEY CAN SWIM. THEY LOVE TO BE IN WATER.

BUT THE MOTHER HEN DID NOT UNDERSTAND. WHAT WERE THE CHICKS DOING? CHICKS DON'T GO INTO WATER.

JAN WAS WATCHING AT THE TIME. SHE SAW THE MOTHER HEN TRY TO PUSH THE LITTLE DUCKS AWAY FROM THE POND. THE HEN CLUCKED.

KEY		
	had	substitution
	it	repetition
	©	corrected
	//	pause
	^	insertion
	(it)	omission

Ches

One other poor reader, Ches, needs to be considered. As a grade four student he was barely able to cope with grade one material. Both his grade two and grade four readings show that word identification required excruciating effort. Like Paul, Ches improved in his utilization of all the cueing systems, but even at grade four he left all of his syntactically and semantically unacceptable miscues uncorrected. Ches plodded from word to word, yet he had the resources to use his sense of the language to assist him. In each of the readings all of his substitutions were real words, demonstrating context utilization with an oral language, or prereading base. Ches's reading pace was so slow and his style so halting, however, that comprehension difficulty could be predicted and in fact, his retelling of the story made it obvious that there was an absence of semantic processing. Furthermore, the story itself, like most written at this level, provides few syntactic or semantic clues: The sentence forms are unnatural and contain little substance. Therefore, when reading such passages, children like Ches are forced to rely on whatever decoding skills they do have and combine them with their oral language experience. This is precisely what Ches did (Chart 7).

When reading the sentence, "Joe heard a sound," the rudimentary decoding skill of looking at the first letter combined with Ches's oral language experience enabled him to produce, "John was (long pause) sad." After he said 'was' he whispered, "No, ain't was," but was he unable to figure out what word the letters h-e-a-r-d constituted.

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CHART 7

JOE WAS NOT HAPPY. ~~HE WANTED~~ He's asked A PET. HE ~~FOUND~~ for A PET. IT Is WAS A (GOAT.)

MOM SAID, "NO." DAD SAID, "NO! NO! NO!" NO ~~GOAT~~ not FOR ~~JOE~~. John

~~JOE HEARD~~ John was A (~~SOUND~~). ("No, ain't was!") sad HE LOOKED (AROUND.) IT WAS A DOG. A LITTLE DOG!

~~JOE~~ John PATTED THE DOG. "HELLO!" ~~JOE~~ John SAID. "I LIKE YOU." ~~"BOW-WOW!"~~ Boo-hoo SAID THE DOG.

(~~"NICE~~) DOG!" SAID ~~JOE~~. John "COME WITH ME. BE MY DOG. BE MY PET."

KEY		
	~~had~~ hos	substitution
	it	repetition
	©	corrected
	//	pause
	^	insertion
	(it)	omission

By grade four Ches still lacked the confidence and skill required to read fluently, but like Paul, more of his lengthy pauses before unknown words resulted in a correct pronunciation. He was still bogged down in individual word identification, but there were some indications of progress evident from the oral reading. Again like Paul, Ches no longer made substitutions based solely on oral language experience. Sometimes his corrections involved a repetition of the phrase in which they occurred, even though the correction was likely prompted by an increased awareness of the appearance of the word in print. For example, "Someone ate my cookies" was read for "Someone ate up my cookies". (Chart 8). When this acceptable error was corrected, the entire phrase 'up my cookies' was repeated, illustrating how his sentence sense had developed. Two other corrections also illustrate an increased awareness that reading material should sound like language. 'Her' was changed to 'here' after repeating the phrase 'in here'. Later in the story, "The looked under the bed" was corrected to "She looked under the bed" after a lengthy pause, presumably required to decode 'looked', although 'looked' had not yet been pronounced. The length of the pause suggests that Ches had figured the word out and realized that 'the' then became incongruous.

CHART 8

BABY BEAR AND THE COOKIES

The
^ BABY BEAR WENT TO SEE GOLDILOCKS. HE WENT TO HER HOUSE. GOLDILOCKS WAS NOT AT HOME.

BABY BEAR LOOKED IN THE WINDOW. BABY BEAR ~~SAW~~ was A LITTLE RED CHAIR AND A LITTLE YELLOW BED. HE ~~SAW~~ said A BIG BROWN ~~BOX~~ bed. HE SAW A LITTLE ORANGE KITTEN.

BABY BEAR JUMPED IN THE WINDOW. "I CAN HAVE FUN (IN HERE)© her," HE SAID. "I CAN SIT ON THE CHAIR. I CAN JUMP UP AND DOWN ON THE BED. I CAN PLAY WITH THE KITTEN. I CAN LOOK IN THE BIG BROWN BOX."

BABY BEAR PLAYED WITH THE KITTEN. HE SAT ON THE CHAIR. HE LOOKED IN THE BIG BROWN BOX. HE ~~SAW~~ said (SOME)© come COOKIES IN THE BOX. BABY BEAR AND THE KITTEN ATE THE COOKIES.

KEY		
	~~bad~~ has	substitution
	it	repetition
	©	corrected
	//	pause
	^	insertion
	(it)	omission

Relating the Case Studies to Reading Stages

Both the good and poor readers investigated here either increased their ability to make use of all four cueing systems (graphic, phonic, syntactic and semantic) in the primary school years, or maintained an already high level. Jeanne Chall (1983) sets out stages of reading development which aptly describe the reading scheme which integrates top-down and bottom-up reading theories by showing that all children progress through a series of stages, each one requiring emphasis on different reading strategies.

In stage 0, from birth to age six, children understand stories read aloud to them and are able to recognize their names, some signs, and the letters of the alphabet. When a child pretends to read a book in this pre-reading stage, he must use top-down strategies because he has not yet acquired any word recognition skills.

In stage 1, the period covering grade one and the beginning of grade two, children learn the relationship between letters and sounds, are able to read simple material, and can sound out one-syllable words. At this stage readers must employ bottom-up strategies in order to master the skills which will permit fluency in later years.

> "To advance, to build up the skill for making choices, beginners have to let go of pseudo-reading. they have to engage, at least temporarily, in what appears to be less mature reading behaviour — becoming glued to the print — in order to achieve real maturity later. They have to know enough about the print in order to leave the print" (Chall, 1983:18).

Stage 2, confirmation and fluency, covers grades two and three. In this period children consolidate their newly acquired decoding skills and enlarged sight vocabularies, and learn to take advantage of the redundancies in the language to gain skill in making use of contextual information. At this stage of development both bottom-up and top-down strategies are required.

By the time a child enters stage 3, reading for learning the new, he has progressed from learning to read to being able to read to learn. He is now not nearly so dependent on grapho-phonic information sources, but is able to use these when necessary. At this stage the reader's vocabulary, linguistic experience, and background knowledge are more important contributors to successful reading.

Stage 4, multiple viewpoints, and stage 5, construction and reconstruction, cover the high school and university years and describe the reader's increasing ability to interpret different viewpoints and synthesize his own knowledge with that of others to create something new.

The observations from these case studies fit the phases described by Chall. Both of the poor readers, as grade two students, were in the very early phase of stage 1, reading haltingly, expending all available effort on word identification, and making guesses without being able to use grapho-phonic information effectively. Both readers progressed but so slowly that even by the beginning of grade four they were still in stage 1 reading. Their word identification skills had improved, but not enough that they could direct their attention to gaining meaning from the print.

The two proficient readers, even at the grade two level, had already advanced to stage 2, where they were learning to integrate visual and linguistic information in order to develop fluency and to glean meaning from the passages. Their decoding skills were well developed so that by the time they reached grade four, they were able to rely less on grapho-phonics and more on syntactic-semantic or linguistic knowledge. They expect reading material to make sense and when it does not, they are flexible enough to call upon all of their resources to render it intelligible.

This close scrutiny of the reading behaviour of good and poor readers at different reading stages supports Chall's

implication that there are, in fact, two levels of top-down processing:

1) a low level in which bottom-up processing does not come into play at all; and

2) a higher level in which bottom-up processing can be resorted to if necessary.

Thus, types of miscues take on a different significance depending on the reading level being studied. A poor reader's omission of a basic word probably means he does not know how to decode the letters, whereas a good reader's omission of the same word is probably indicative of his ability to seek meaning without getting bogged down in the identification of each word regardless of its importance in the sentence.

The substitution of a contextually appropriate word bearing no graphic similarity to the original indicates poor word analysis skills in a poor reader but effective reading for meaning in a more sophisticated student. The immediate correction of a word is indicative of the necessary one-word-at-a-time approach to reading in a beginning reader but in a mature reader demonstrates a highly developed sense of knowing when a word 'looks right'.

Educational Implications

The educational implications of this research are clear. Although proficient reading may be marked by a reliance on syntactic and semantic cueing strategies and a lack of strict attention to the print, in order to attain this level readers must master word identification skills. Having students reading for meaning is surely the ultimate goal of reading education, but there is a stage when readers are glued to the print as they learn to crack the code. The teaching of phonics and word analysis directly or indirectly, creatively or uncreatively,is likely to be highly effective and beneficial to reading development.

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APPENDIX

In the scoring system used for the miscue analysis, a corrected error was assigned points according to its type. That is, each correction was judged to have been prompted by either bottom-up or top-down cues, and the original miscue score was then altered accordingly.

This is a departure from earlier methods of incorporating corrections into miscue analysis scoring. The Reading Miscue Inventory Manual (Goodman and Burke, 1971) presupposes that corrections are always indicative of top-down processing. When a semantically and syntactically acceptable error is corrected, this is deemed to be "overcorrection", unnecessary, and indicative of poorly developed reading skill.

The miscue data gathered for the SESA project support Chall's theory of reading development stages. The cases cited in this paper show that there is a phase in which readers rely heavily on the graphic display to process linguistic information. It could be expected, therefore, on theoretical grounds, that readers in this stage would be keenly aware of printed letters, words, and their corresponding phonic representation.

In the next stage a reader's awareness of the print is an indication of how well he has mastered the skills important to the previous stage, of how well he is able to use both types of information rather than one to the exclusion of the other.

Many studies conducted since the emergence of psycholinguistic reading theory in the late sixties have shown that good readers can be distinguished from poor readers on the basis of their superior

grapho-phonic processing abilities: that is, good readers are able to recognize letters and words so quickly that anticipatory mechanisms do not have time (or need) to operate. (Allington and Fleming, 1978; Allington and Strange, 1977; Biemiller, 1970; Stanovich, 1980). Other studies have produced complementary findings showing that reliance on contextual information is as important or more important for poor readers as for good readers (Schvaneveldt, Ackerman, and Semlear, 1977; Stanovich, West, and Feeman, 1981).

Reading is at least partly a visual process and it is reasonable to assume that readers are capable not only of correcting an error which has rendered a sentence anomalous, but also of correcting an error because of a sound-sight discrepancy. This is made obvious in cases where meaning and syntax are not involved at all, such as when subjects make corrections while reading a list of unrelated words, or when a correction is made of only one error occurring in a phrase with several other miscues which render the phrase or sentence meaningless and ungrammatical.

The correction of a wholly acceptable error is likely to be prompted by visual information. An unacceptable error could be corrected because of a discovered anomaly, or because a persisting visual image reveals a graphic-phonic discrepancy, or a combination of bottom-up and top-down factors might suggest a rereading.

Consider the following examples:

A. The lifeguards, youthful, muscular, and deeply tanned, are used to being surrounded by a horde of admiring youngsters and teased by jokes such as, "You mean to tell me you guys actually get paid just to sit up there all day and watch...?"

B. You must have forgotten to set your hand brake.

C. They say that these are brown bears which we have painted white.

In the first example, the reader repeated the word immediately prior to the miscue, indicating his uncertainty about its identity, then sounded out the word, creating a partially similar nonsense word. Realizing that 'admodering' is very similar to 'admiring' which fit nicely in the sentence, the reader made the correction, most likely utilizing top-down processing, but possibly because during a second look the misread letters were noticed. In the SESA scoring system, this would be labeled a 'combination' type correction, and the scores of 1 out of 2 for graphic and phonic similarity and of 0 out of 2 for syntactic and semantic acceptability would all be rescored as 2 out of 2 to reflect the use of both kinds of cues.

In the second example the omission of 'just' makes little difference to the sentence. It is probable that as the student was reading the word immediately following the error he noticed letters in his peripheral vision which he could not recall having said aloud, then made the correction. In rescoring this error, the graphic and phonic columns were given twos to replace the blanks for the omission, because only grapho-phonic information was used in making the correction. (Omission miscues do not receive scores for graphic or phonic similarity as there is no observed response to be compared to the expected response.) The syntactic and semantic scores remained unchanged, but of course in all such cases they would be 2 out of 2.

In the examples B and C, the reader continued on after making an error until he reached the point in the sentence where it became obvious that something was amiss. The awareness of the syntactic-semantic incongruity prompted a regression to search for the source of the difficulty and this resulted in a correction. Only the semantic and syntactic scores were changed to 2 out of 2, replacing the original ones.

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